Remarks

Courtesies extended to Applicants' representative during the telephone interview held on May 20, 2008, are acknowledged with appreciation.

In accordance with the present invention, it has been discovered that Alanine-Cpn10 (as disclosed for the first time in the present application) provides a distinct functional advantage over other Cpn10 mutants and fragments previously known in the prior art. For example, the Examiner's attention is directed to the Somodevilla-Torres *et al.* publication (cited in section 9 bridging pages 4-5 of the Office Action). This reference is fully consistent with Applicants' assertion that Alanine-Cpn10 provides a distinct functional advantage over other existing Cpn10s. Support for Applicant's assertions regarding "functional advantage" of Alanine-Cpn10 is found throughout the Somodevilla-Torres et al. reference, which, *inter alia,* investigates whether an N-terminal modification of Cpn10:

(i) provides an advantage over unmodified or non-acetylated Cpn10 molecules in the context of immunomodulatory activity and

(ii) confers immunomodulatory activity similar to that of native Cpn10 (which is acetylated at the N-terminus).

In Somodevilla-Torres, a modified Cpn10 molecule (which is identical to the Alanine-Cpn10 described in the present application), was synthetically produced in *E.coli* and contained a single amino acid residue addition of alanine to the N-terminus of the molecule (designated rAla1-101) in which the alanine addition is an approximation to an acetylation (see page 285, column 1, paragraph 1, lines 12 – 14).

Alanine-Cpn10 and native Cpn10 (aka acetyl-Cpn10 and designated r1-101BV in Somodevilla-Torres) were tested for their ability to suppress a DTH response and found to be

significantly active in suppressing this response in comparison to a vehicle-treated group ($p=0.0004$ and $p=0.003$ respectively). In contrast, recombinant r1-101 (i.e. Cpn10 which does not have an amino acid addition or acetyl group at the N-terminus) was not significantly different (i.e. $p>0.05$) to that of the vehicle-treated group (page 284, column 1, paragraph 3, lines 12 to 26 and Table 2).

Taken together, the Somodevilla-Torres publication supports Applicants' assertion that:

(i) acetylation or appropriate equivalent thereof, such as an N-terminal addition of alanine, is an important contributor to the immunomodulatory activity of Cpn10 (page 285, column 1, paragraph 1, lines 15 – 19) and

(ii) "the modified *E. coli* product, rAla-101 [Alanine-Cpn10] which has immunosuppressive activity *in vivo* of potency similar to that of the eukaryotic product, fulfills all other objectives and is the molecule of choice for future investigation" (see page 285, column 2, paragraph 3, lines 44 to 48).

By the present communication, claims 24 and 25 have been amended, and new claims 30-31 have been added, to define Applicant's invention with greater particularity. No new matter is introduced by the subject amendments as the amended and new claim language is fully supported by the specification and original claims. In addition, claims 1-23 have been cancelled without prejudice, subject to Applicants' right to pursue the subject matter thereof in one or more subsequent filings which claim priority from the present application. Upon entry of the amendments submitted herewith, claims 24-31 will be pending. A detailed listing of all claims that are, or were, in the application, irrespective of whether the claim(s) remain under examination, is presented in the Listing of Claims, beginning on page 3 of this communication, with an appropriate status identifier for each claim.

Objection to the Specification

The objection to the abstract of the disclosure as allegedly not commencing on a separate sheet is respectfully traversed. The present application is a § 371 filing of PCT Application No. AU2003/001467, the abstract of which is presented on the cover page thereof.

However, in order to reduce the issues and expedite prosecution, a replacement abstract is provided herewith on a separate sheet, thereby rendering this objection moot.

Objection to the Claims

The objection to claim 25 for the inadvertent misspelling of the word "immunosuppressive" has been rendered moot by the amendment submitted herewith, whereby the misspelling thereof has been corrected.

Information Disclosure Statement

A supplemental SB-08 is provided herewith containing a corrected citation for Reference A3. In addition, a replacement copy of Reference A13 is provided herewith. Acknowledgement that these references have been considered is respectfully requested.

Rejection under 35 U.S.C. § 112, first paragraph (written description)

The rejection of claims 1-7, 9-16, 18-20 and 22-28 under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement, is respectfully traversed. As a preliminary matter, this rejection has been rendered moot as to claims 1-7, 9-16, 18-20, 22 and 23 by the cancellation thereof.

It is respectfully submitted that this rejection is not applicable to claims 24-29 (and newly added claims 30-31) for at least the following reasons. Applicants' invention, as defined, for example, by claim 24, requires a pharmaceutical composition comprising:

a pharmaceutically-effective amount of cpn10 comprising a defined amino acid sequence

(or functional derivative thereof), and

a pharmaceutically-acceptable carrier, excipient or diluent.:

There is respectfully submitted to be substantial written description for the compositions embraced by the present claims. See, for example, Figure 1 of priority document Australian Provisional Patent Application No. 2002952492, as well as page 8, lines 14-17, and page 10, lines 8-10 thereof.

Accordingly, reconsideration and withdrawal of the rejection under 35 U.S.C. §112, first paragraph, are respectfully requested.

Foreign Priority

Applicants respectfully disagree with the Examiner's assertion that "the foreign priority document does not disclose the scope of the claimed inventions." (See page 4, lines 1-2 of the Office Action). Contrary to the Examiner's assertion, the priority document fully supports the present invention, as claimed herein. See, for example, Figure 1 of priority document Australian Provisional Patent Application No. 2002952492, as well as page 8, lines 14-17, and page 10, lines 8-10 thereof.

Rejections under 35 U.S.C. § 102

. . . under 102(b) over Coates

The rejection of claims 20, 22-26 and 28 under 35 U.S.C. §102(b), as allegedly being anticipated by Coates et al. (WO 02/40038) is respectfully traversed.

As a preliminary matter, this rejection has been rendered moot as to claims 20, 22 and 23 by the cancellation thereof. As to the remaining claims (i.e., claims 24-26 and 28), it is respectfully submitted that Coates et al. is not properly applied against these claims.

Applicants' invention, as defined, for example, by claim 24, distinguishes over Coates et al. by requiring a pharmaceutical composition comprising:

a pharmaceutically-effective amount of cpn10 comprising a defined amino acid sequence (or functional derivative thereof), and

a pharmaceutically-acceptable carrier, excipient or diluent.:

Coates et al. do not disclose such compositions. Instead, the Coates et al. reference is directed to compositions containing *Mycobacterium* Cpn10. Alanine-Cpn10 (a recombinant Cpn10 mutant derived from human Cpn10) is clearly distinct from *Mycobacterium* Cpn10. For example, the degree of homology and isoelectric focusing differ substantially for these materials. Thus, *Mycobacterium* Cpn10 only has 37% identity (and 63% similarity) with respect to human Cpn10. Moreover, isoelectric focusing (i.e. pI) of mammalian Cpn10 is substantially different than isoelectric focusing of non-mammalian Cpn10 (e.g. *M. tuberculosis* Cpn10).

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. §102(b) are respectfully requested.

. . . under 102(b) over Morton

The rejection of claims 16, 18-20 and 22-24 under 35 U.S.C. §102(b), as allegedly being anticipated by Morton et al. (US Patent No. 6,117,421) is respectfully traversed.

As a preliminary matter, this rejection has been rendered moot as to claims 16, 18-20, 22 and 23. As to claim 24, Applicants' invention distinguishes over Morton et al. by requiring a pharmaceutical composition comprising:

a pharmaceutically-effective amount of cpn10 comprising a defined amino acid sequence (or functional derivative thereof), and

a pharmaceutically-acceptable carrier, excipient or diluent.

Morton et al. do not disclose such compositions. Instead, the Morton et al. reference is directed to compositions containing mammalian Cpn10, which does not embrace the specific modified form thereof contemplated herein, i.e., Alanine-Cpn10 (a recombinant Cpn10 mutant derived from human Cpn10).

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. §102(b) are respectfully requested.

. . . under 102(a) over Somodevilla-Torres

The rejection of claims 16, 18, 20, 22, 24 and 29 under 35 U.S.C. §102(a), as allegedly being anticipated by Somodevilla-Torres et al. (Protein Expression and Purification 32:276-287 (2003)) is respectfully traversed.

In view of the discussion above establishing Applicants' right to claim priority back to the filing date of priority document Australian Provisional Patent Application No. 2002952492, at least with respect to the invention as presently claimed, it is respectfully submitted that the Somodevilla-Torres et al. reference is not properly applied against the present claims.

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. §102(a) are respectfully requested.

Rejections under 35 U.S.C. § 103(a)

. . . under 103(a) over Morton in view of Kimura

The rejection of claims 1-7, 9-16, 18-20 and 22-28 under 35 U.S.C. §103(a), as allegedly being unpatentable over Morton et al., in view of Kimura et al. (J of International Medical Research 29:214-221 (2001) is respectfully traversed.

As noted above, Morton et al. does not anticipate the present claims. Further reliance on Kimura et al. is unable to cure the deficiencies of Morton. Similar to Morton et al., the Kimura et al. reference does not disclose pharmaceutical compositions comprising the defined cpn10 mutant required by the present claims.

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. §103(a) are respectfully requested.

. . . under 103(a) over Morton + Kimura +Somodevilla-Torres

The rejection of claims 8 and 29 under 35 U.S.C. §103(a), as allegedly being unpatentable over Morton in view of Kimura, as applied to claims 1-7, 9-16, 18-20 and 22-28 above, and further in view of Somodevilla-Torres et al. is respectfully traversed. Since, as discussed above, Somodevilla-Torres is not properly applied against the present claims, it is not available to be asserted against the present claims. Therefore, this rejection is without merit.

Accordingly, reconsideration and withdrawal of this rejection under 35 U.S.C. §103(a), as are respectfully requested.

Conclusion

In view of the above amendments and remarks, Applicant respectfully requests reconsideration and favorable action on all claims. In the event any matters remain to be resolved in view of this communication, the Examiner is encouraged to contact the undersigned so that a prompt disposition of this application can be achieved.

Respectfully submitted,

Date 7/15/08 By SEP E.C

FOLEY & LARDNER LLP
Customer Number: 30542
Telephone: (858) 847-6711
Facsimile: (858) 792-6773

Stephen E. Reiter
Attorney for Applicant
Registration No. 31,192

Enclosures—Replacement Abstract of the Disclosure
Supplemental SB-08
Copy of Reference A13